## Kenai National Wildlife Refuge

The first refuge in Alaska to receive a contaminant assessment was the Kenai National Wildlife Refuge (KNWR) (Figure 2). The results of the contaminant assessment are presented in this report. In addition to this report, contaminant assessment data were entered into CAP's national database.



Figure 2. Location of the Kenai National Wildlife Refuge on the Kenai Peninsula, Alaska.

Graphics by USFWS.

The following synopsis describing the KNWR is the Introduction contained in the most recent Kenai National Wildlife Refuge Annual Narratives:

The Kenai National Wildlife Refuge is located on the Kenai Peninsula in southcentral Alaska. The northern portion of the Refuge is just 15 air miles from the state's largest population center, the city of Anchorage. Despite its proximity, a scenic 112-mile drive through the Kenai Mountains is necessary to reach the nearest portion of the Refuge by road from Anchorage. Commercial commuter aircraft fly into the nearby cities of Kenai and Soldotna daily.

Extending 115 miles from Turnagain Arm on the north to nearly the Gulf of Alaska on the south, the Refuge encompasses about one-third of the Kenai Peninsula. The western portions of the Kenai Mountains generally form the eastern Refuge boundary; a common boundary shared with our Chugach National Forest and Kenai Fjords National Park neighbors.

Since the establishment of the Refuge as the Kenai National Moose Range on December 16, 1941, under E.O. 8979, these lands have undergone at least two boundary changes and a name change.

The original Refuge included 2,058,000 acres and, among other mandates, authorized settlement, location, and other disposition under public land laws applicable to Alaska. At that time, the Refuge was bounded on the northwest, from Point Possession to the Kasilof River, by the waters of Cook Inlet. A six-mile-wide strip of land from Boulder Point to the Kasilof River and a six-mile strip of land, including portions of the Kenai River, were left open for development. Homesteads, grazing areas, road systems, and other developments occurred in these areas, and they were excluded from the Refuge during a 1964 boundary adjustment. Excluded at the same time were Cook Inlet coastal lands one to three miles inland and considerable portions of the Harding Ice Field, reducing the Refuge area to 1.73 million acres.

Passage of the Alaska National Interest Lands Conservation Act (ANILCA), commonly known as "The Alaska Lands Act," on



The Kenai National Wildlife Refuge was initially established as the Kenai National Moose Range in 1941. USFWS Photo by Michael F. Boylan.

December 2, 1980, redesignated the Kenai National Moose Range as the Kenai National Wildlife Refuge.

The Act also increased the Refuge acreage, adding approximately 150,000 acres at the southern tip of the Refuge and about 90,000 acres of former Forest Service lands to the extreme northeast portion of the Refuge near Chickaloon Flats. At the same time, passage of ANILCA withdrew 16,535 acres from the Refuge to satisfy the claims of the Salamatof Native Association under the Alaska Native Claims Settlement Act of 1971. The now 1.97 million acre Refuge was reestablished and its purposes redefined as follows: 1) conserve fish and wildlife populations and habitats in their natural diversity including, but not limited to, moose, bears, mountain goats, Dall sheep, wolves and other furbearers, salmonoids and other fish, waterfowl and other migratory and nonmigratory birds; 2) fulfill international treaty obligations of the United States with respect to fish and wildlife and their habitats; 3) to ensure, to the maximum extent practicable and in a manner consistent with the purposes set forth in paragraph (1), water quality and necessary water quantity within the refuge; 4) provide in a manner consistent with subparagraphs (1) and (2), opportunities for scientific research, interpretation, environmental education, and land management training; and 5) provide, in a manner compatible with these purposes, opportunities for fish and wildlife-oriented recreation. In addition to establishing a new name, new boundaries, and new purposes, ANILCA formally designated 1.35 million acres of the Refuge as wilderness.

The Refuge is divided into two main physiographic regions: a mountainous region and a forested lowland. Elevations on the Refuge range from sea level to more than 6,600 feet in the Kenai Mountains, with treeline at about 1,800 feet. Among the peaks of the Kenai Mountains lies the Harding Ice Field, which thrusts numerous glacial fingers out into the Refuge. The glaciers, mountains, lakes, alpine tundra, and foothills are extremely scenic.

Thirty-nine percent of the Refuge is forested. Swampy forests of black spruce alternate with peatbogs and grassy mires while white spruce forests dominate the drier areas and the foothills and mountains. White spruce stands are often intermixed with and include deciduous trees, such as white birch and aspen, especially in old burns and cut-over areas. Lowland shrub (alder and willow) covers nine percent of the Refuge. Mountain tundra covers about 11 percent. Of this class, about 87 percent is dwarf shrub and lichen tundra, and 13 percent is tall shrub (alder and willow) thickets usually associated with tundra. Water and associated wetlands cover 13 percent, and snow, ice, and glaciers cover the remainder of the Refuge.

The Kenai River, the largest river system on the peninsula, drains about 2,148 square miles (5,563 km²). About 54 percent of the watershed is on the Refuge, 37 percent in the Chugach National Forest, and the remainder on private lands. Ten major tributaries feed the Kenai River System: Beaver Creek, Slikok

Creek, Soldotna Creek, Funny River, Moose River, Killey River, Skilak River, Russian River, Cooper Creek, and Juneau Creek. Other Refuge river and stream systems flowing westward into Cook Inlet include the Kasilof River (which drains Tustumena Lake), Deep Creek, and the Swanson, Fox, Ninilchik, and Chickaloon Rivers.

There are thousands of lakes on the Kenai Peninsula, and most of them are on the Refuge. The largest are two glacial lakes, Tustumena Lake (74,000 acres or 31,000 ha) and Skilak Lake (25,000 acres or 10,000 ha). More than 4,500 smaller lakes dot the Refuge, mostly in the Moose, Swanson, and Chickaloon River drainages.

At least 199 species of amphibians, birds, and mammals use the wildlife habitats on the Refuge. None of these species are known to be threatened or endangered. Five species of salmon, a wide variety of furbearers, and significant populations of brown and black bear, sheep, goats, wolves, Bald Eagles, Trumpeter Swans, caribou, moose, and loons occur on the Refuge.

Boreal owl. USFWS Photo by Theodore N. Bailey.

Lynx. USFWS Photo by Theodore N. Bailey.

 $Sockeye\ salmon.\ USFWS\ Photo.$ 

Caribou. USFWS Photo by James E. Frates.